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Heldebrant et al.

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(54) **CAPTURE AND RELEASE OF ACID-GASSES WITH ACID-GAS BINDING ORGANIC COMPOUNDS**

(75) Inventors: **David J. Heldebrant**, Richland, WA (US); **Clement R. Yonker**, Kennewick, WA (US); **Phillip K. Koech**, Richland, WA (US)

(73) Assignee: **Battelle Memorial Institute**, Richland, WA (US)

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(58) **Field of Classification Search**
USPC 423/220, 210, 235, 242.1, 242.2, 242.3, 423/242.7
See application file for complete search history.

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Primary Examiner — Bijay Saha
(74) *Attorney, Agent, or Firm* — Derek H. Maughan

(57) **ABSTRACT**

A system and method for acid-gas capture wherein organic acid-gas capture materials form hetero-atom analogs of alkyl-carbonate when contacted with an acid gas. These organic-acid gas capture materials include combinations of a weak acid and a base, or zwitterionic liquids. This invention allows for reversible acid-gas binding to these organic binding materials thus allowing for the capture and release of one or more acid gases. These acid-gas binding organic compounds can be regenerated to release the captured acid gasses and enable these organic acid-gas binding materials to be reused. This enables transport of the liquid capture compounds and the release of the acid gases from the organic liquid with significant energy savings compared to current aqueous systems.

1 Claim, 3 Drawing Sheets